

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1. (Currently Amended) A radiation-curable urethane (meth)acrylate obtained by a process, comprising:

- a) partly reacting an alkoxylated polyol (A) with (meth)acrylic acid (B) in the presence of at least one esterification catalyst (C) and at least one polymerization inhibitor (D) and, optionally, a solvent (E) that forms an azeotrope with water until at least 75 % of the water product from the esterification reaction has been released, thereby forming a fluid medium containing esterification product;
- b) during or after step (a), optionally removing at least some of the water formed in a) from the reaction mixture;
- f) optionally neutralizing the reaction mixture;
- h) optionally removing any solvent (E) by distillation; and/or
- i) optionally stripping the treated reaction mixture with a gas which is inert under the reaction conditions and optionally removing excess ~~acrylic~~ (meth)acrylic acid by distillation;
- k) reacting the reaction mixture obtained after step i) with a compound (G) containing at least two epoxy groups, optionally in the presence of a catalyst (H); and
- l) reacting the reaction mixture from step (k) with at least one polyisocyanate compound (J), ~~and~~ at least one hydroxyalkyl(meth)acrylate (K) and ~~[[,]]~~ at least one compound (M) comprising one or more isocyanate-reactive groups, wherein for each mole equivalent in

(J), the amount of (K) ranges from 0.05 to 0.6 mol and the amount of (M) ranges from 0.2 to 0 mol, with the sum of (K) and (M) relative to the NCO equivalents reduced by the molar amount of OH groups and acid groups in the reaction mixture obtained from step (k), optionally in the presence of a catalyst (L).

Claim 2. (Canceled)

Claim 3. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in Claim 1, wherein the reaction mixture in step (k) has an acid number to DIN EN 3682 of up to 200 mg KOH/g and an OH number to DIN 53240 of up to 120 mg KOH/g.

Claim 4. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the reaction mixture in step (l) has an OH number to DIN 53240 of up to 250 mg KOH/g.

Claim 5. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the alkoxyated polyol (A) is a pentaerythritol, trimethylolethane or trimethylolpropane having from single to 20-fold ethoxylation.

Claim 6. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the epoxide compound (G) is bisphenol A diglycidyl ether, 1,4-butanediol diglycidyl ether, trimethylolpropane triglycidyl ether or pentaerythritol tetraglycidyl ether.

Claim 7. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the polyisocyanate (J) is 2,4- or 2,6-tolylene diisocyanate or an isomer mixture thereof, hexamethylene diisocyanate, 1,3-bis(isocyanatomethyl)cyclohexane, isophorone diisocyanate or di(isocyanatocyclohexyl)methane.

Claim 8. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the hydroxyalkyl (meth)acrylate (K) is 2-hydroxyethyl acrylate or 2-hydroxyethyl methacrylate.

Claims 9 and 10 (Canceled)

Claim 11. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the alkoxyated polyol (A) with (meth)acrylic acid (B) are combined in an (A)/(B) molar ratio of 1: 0.75 – 2.5.

Claim 12. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in Claim 11, wherein the (A)/(B) molar ratio ranges from 1: 0.8 – 2.

Claims 13-16. (Canceled)

Claim 17. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the amount of epoxide compound (G) reactant in step (k) ranges from 5 to 60 % by weight.

Claim 18. (Previously Presented) The radiation-curable urethane (meth)acrylate as claimed in claim 1, wherein the catalyst (H) of step (k) is present in an amount of 0.01 to 5 % by weight.

Claim 19. (Currently Amended) A process for preparing a radiation-curable urethane (meth)acrylate, comprising:

a) partly reacting an alkoxyated polyol (A) with (meth)acrylic acid (B) in the presence of at least one esterification catalyst (C) and at least one polymerization inhibitor (D) and, optionally, a solvent (E) that forms an azeotrope with water until at least 75 % of the water product from the esterification reaction has been released, thereby forming a fluid medium containing esterification product;

b) during and after step (a), optionally removing at least some of the water in the reaction mixture;

f) optionally neutralizing the reaction mixture;

h) optionally removing any solvent (E) by distillation; and/or

i) optionally stripping with the treated reaction mixture with a gas which is inert under the reaction conditions and removing excess (meth)acrylic ~~acrylic~~ acid by distillation.

k) reacting the reaction mixture with a compound (G) containing at least two epoxy groups, optionally in the presence of a catalyst (H); and

l) reacting the reaction mixture from step (k) with at least one polyisocyanate compound (J), at least one hydroxyalkyl(meth)acrylate (K), and at least one compound (M) comprising one or more isocyanate-reactive groups, wherein for each mole equivalent in (J), the amount of (K) ranges from 0.05 to 0.6 mol and the amount of (M) ranges from 0.2 to 0 mol, with the sum of (K) and (M) relative to the NCO equivalents reduced by the molar amount of OH groups and acid groups in the reaction mixture obtained from step (k),

optionally in the presence of a catalyst (L).

Claim 20. (Previously Presented) A radiation-curable coating composition comprising the radiation-curable urethane (meth)acrylate as claimed in claim 1.

Claim 21. (Previously Presented) An interior wood-coating material comprising the radiation-curable coating composition as claimed in claim 20.